Construction Sealant (Formulation # 77273-A)

One-Component, Moisture Curing Polyurethane Sealant Formulation

DESCRIPTION

The following formulation is a high performance, moisture curing, aromatic sealant for one-component applications. This formulation would typically be applied as a one-component sealant in a caulking tube. The formulation is a recommended guide formulation that uses Desmodur® E 23500, a product supplied by Covestro.

KEY FEATURES

- One-component
- Moisture cure
- High elongation
- Good strength

FORMULATION AND RAW MATERIAL DETAIL

Material	Parts	Function	Supplier
Components			
Titanium Dioxide	0.99	Pigment	
Atomite™	11.53	Filler	Imerys Performance Materials
Drikalite™	27.67	Filler	Imerys Performance Materials
ULTRA-PFLEX®	6.91	Filler	Minerals Technologies, Inc.
Mesamoll®	19.54	Plasticizer	Lanxess
TINUVIN® 292	0.10	UV stabilizer	BASF Corporation
TINUVIN® 1130	0.10	UB absorber	BASF Corporation
Irganox® 1135	0.10	Antioxidant	BASF Corporation
Desmodur® E 23500	29.31	Resin	Covestro
Incozol® 4	2.29	Curing Agent	Incorez Limited
CAB-O-SIL® TS-720	1.47	Thixotrope	Cabot Corporation
Total Formulation	100.00		

Typical Results			
Weight Solids (%)	100.00	Density (lb./gal)	12.60
Volume Solids (%)	100.00	P/B	0.95
VOC (lb./gal)	0	PVC (%)	27.49

MANUFACTURING INSTRUCTIONS AND COMMENTS

- A planetary mixer equipped with a dispersing blade, side scraper, cooling water jacket, nitrogen inlet, and vacuum adapter should be used in preparation of the sealant.
- Pre-dry all fillers and pigments in an oven to eliminate moisture.
- Preparation under dry nitrogen is recommended
- Charge the vessel with the dried fillers, pigment, plasticizer, and UV stabilizers. Under vacuum, mix using the planetary blade to eliminate air.
- Remove vacuum and pad with nitrogen. Add Desmodur® E 23500 and curing agent while mixing.
- Add the fumed silica and stir until desired thixotropy is achieved.

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APPLICATION GUIDELINES

- Remove any existing sealant using a scarper, putty knife, or wire brush. Clean the joint with solvent if necessary. If the substrate is concrete, apply a concrete primer prior to sealing.
- The sealant must be dispensed into plastic cartridges or internally coated aluminum cartridges only.
- Apply the sealant into the joint using a one-component caulking gun. Smooth the sealant surface with a jointing tool immediately after application.
- Allow the sealant to cure undisturbed under ambient moisture conditions.

TROUBLE SHOOTING

- This formulation will cure slower in low temperature and low humidity conditions. The formulation will cure faster in high temperature and high humidity conditions.
- Additional fumed silica can be added if enhanced thixotropic behavior is desired.
- Removal of the fumed silica from the formulation will create a self-leveling-like sealant.

APPLICATION AND CURED SEALANT PROPERTIES

Typical Cured Sealant Properties	
Shore A Hardness, 1 sec (5 sec) ASTM D 2240 Durometer Hardness	A 34 (A 32)
Tensile Strength at Break ASTM D 412	1.68 MPa (243.7 psi)
Modulus at 100% ASTM D 412	0.791 MPa (114.7 psi)
Elongation at Break ASTM D 412	582.3%
Tear Resistance, Die C ASTM D 624	80 lbf/in
Joint Movement Capability ASTM C719	Internal testing in progress

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Reference: NB# 77273-A

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